



## *Centrolepis milleri* (Centrolepidaceae: Poales), a new species from Western Australia

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### Abstract

*Centrolepis milleri*, a new species endemic to southwestern Western Australia is described and illustrated. The species is restricted to sandplains and currently known from several sites in the Eneabba sandplain on the southern end of the Geraldton Sandplains Bioregion and a single site on the Esperance Sandplain NE of Albany. Although apparently not collected until 2003, *C. milleri* is common at several locations. Specimens of *C. milleri* grow with their leaves mostly buried by sand. This semi-subterranean habit is possibly an adaptation to avoid light stress. *Centrolepis milleri* superficially resembles *C. drummondiana*, but differs from it in the presence of two to five cataphylls at the base of a scape, in the absence of a spikelet in the axil of the lower primary bract, in the dimorphic morphology of the primary bracts and in the presence of one long and one short tepal-like phyllome associated with each flower. The absence of a spikelet in the axil of the lower primary bract and the dimorphic nature of the primary bracts are shared with species such as *C. polygyna* and *C. glabra*, to which *C. milleri* is apparently related. The combination of inflorescence characteristics found in *C. milleri* is unique in *Centrolepis*, and its inclusion in phylogenetic reconstructions of inflorescence evolution in this unusual genus is therefore significant.

**Key words:** cataphyll, *Centrolepis*, inflorescence, sandplain, Western Australia, tepal-like phyllome

### Introduction

*Centrolepis* Labillardière (1804: 7) includes about 30 currently recognized species, being the largest genus of the family Centrolepidaceae. The family belongs to the restiid clade of Poales and some molecular phylogenetic trees suggest its placement as a subfamily within Restionaceae, on an extremely long branch (Briggs *et al.* 2014). Like the entire restiid clade, *Centrolepis* has a major diversity centre in southwestern part of Western Australia. In this paper, we describe and illustrate a new species of *Centrolepis* from this botanically well-explored region. The new species, *Centrolepis milleri*, is locally common, but was previously neglected, probably due to small size of plants, with leaves mostly buried by sand and due to superficial resemblance to other species of the genus, especially *C. drummondiana* (Nees von Esenbeck 1841: 51) Walpers (1849: 896).

Morphology of reproductive organs of *Centrolepis* is unusual in many respects and has been subject of extensive discussion. Different morphological interpretations result in different descriptive terminology used in various accounts. In the present paper, we follow interpretations of Bentham (1877, 1878) and Sokoloff *et al.* (2009, 2010) and describe inflorescences of *Centrolepis* as double spikes bearing mostly bisexual flowers with one stamen and one to numerous united carpels. We use the term ‘primary bracts’ (Cooke 1992) for the two phyllomes of the primary inflorescence axis. In the interpretation followed here, one or both primary bracts subtend lateral dorsiventral spikelets. Structures interpreted here as flowers correspond to pseudanthia in the terminology of Hamann (1962) and Cooke (1992, 1998). Flowers of *Centrolepis* are associated with one to three tepal-like phyllomes. These were termed ‘secondary bracts’ by